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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,020	04/12/2004	Shoichi Yamazaki	1232-5377	3545
27123	7590	07/19/2007		
MORGAN & FINNEGAN, L.L.P. 3 WORLD FINANCIAL CENTER NEW YORK, NY 10281-2101			EXAMINER PHAN, JAMES	
			ART UNIT	PAPER NUMBER
			2872	
			MAIL DATE	DELIVERY MODE
			07/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/823,020	<b>Applicant(s)</b> YAMAZAKI ET AL.	
	<b>Examiner</b> James Phan	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-44 is/are pending in the application.
- 4a) Of the above claim(s) 17-44 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 and 12-16 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>9/15/04</u> . | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Election/Restrictions***

Applicant's election with traverse of the species(1) in the reply filed on 4/16/07 is acknowledged. The traversal is on the ground(s) that no serious burden on the examiner if all claims were searched and examined together. This is not found persuasive because each of the species disclosed a patentably distinct feature which requires a separate search. Thus, a serious burden would impose on the examiner has been shown.

The requirement is still deemed proper and is therefore made FINAL.

Applicant states that claims 1-18, 21-24, 27-28,36-38, 40 and 42-44 read on the elected species disclosed in the first embodiment. The examiner disagrees because claims 17-44 disclosed in the non-elected species, including the second, third, fourth and fifth embodiment, contain a first optical system having a plurality of rotationally asymmetric reflective surfaces. As clearly show in the numerical examples 2-5, corresponding to the second through fifth embodiment, the first optical system is disclosed to have a plurality of rotationally asymmetric reflective surfaces; and evidence claims 19-20, 25-26 and 39 show that the first optical system recited in independent claims 17, 23 and 36, respectively, is directed to the non-elected species. Therefore, claims 17-44 are not disclosed in the first embodiment shown in the numerical example 1.

Claims 17-44 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species.

***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Information Disclosure Statement***

The information disclosure statement (IDS) submitted on 9/15/04 has been considered by the examiner.

***Additional Prior Art Cited***

Inoguchi et al discloses a display optical system having a first optical system; Tiwell discloses a scan type image display apparatus having an image-information supply apparatus; and Keiichi discloses an optical scanning system having a two-dimensional scanning device formed of a reflective member.

***Claim Rejections - 35 USC § 112***

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The phrase "the second surface again reflecting" in claims 1 and 17, line 9, is confusing because the second surface reflects light ***only once*** in the light paths from the scanning device to the second surface and from the second surface to the exit pupil; thus, the claims are indefinite. Claims 2-8 are also rejected in that they are dependent on the indefinite claims and thus inherit the deficiency above.

Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the first surface" in line 6. There is insufficient antecedent basis for this limitation in the claim.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 7, 9, and 15 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 5, respectively, of U.S. Patent No. 7,027,229 in view of Togino et al.

In regard to claims 1 and 9, Claims 1 and 5 of the patent disclose all claimed features recited in application claims 1 and 9, respectively, (see patent claim 1, column

28, lines 18-29 and 33-34, and patent claim 5, column 29, lines 47-55 and 59-60) except for a scanning device. However, the use of a scanning device disposed between a light source and an optical system of an image display apparatus is well known in the art for forming a scan type image display apparatus (see Togino et al, Figs 7-9 and the accompanying text). Thus, it would have been obvious to one skilled in the art at the time the invention was made to apply the teaching of Togino et al in the U.S. Patent by positioning a scanning device as taught in Togino et al between the light source and the optical system of the image display system disclosed in each of patent claims 1 and 5 for forming a scan type image apparatus.

In regard to claims 7 and 15, a drive circuit is inherently disclosed because it is necessary for driving the scanning device.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, as understood, 4-5, 7, 9, 12-13 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Togino et al.

In regard to claim 1, similar to the teaching in column 26, line 60, through column 27, line 21, when the reflection-type LCD (3) in the image display device shown in Fig. 3 is replaced with a scattering surface (6), and the light source (5) is replaced with a

scanning device (30 and 26) and a light source (29), a scan type image display apparatus comprising a scanning optical system is formed. The scanning optical system comprises a scanning device (30 and 26) which scans light from a light source (29); and a first optical system (10 and 20) which directs the light scanned by the scanning device to an exit pupil (1), wherein the first optical system comprises a first surface (12) and a second surface (6), the first surface having at least a reflective action and being decentered with respect to a central principal ray, the second surface reflecting light reflected by the first surface toward the first surface, and wherein the first surface reflects the central principal ray, which has again been made incident to the first surface from the second surface, toward a side substantially opposite to a side toward which the central principal ray was reflected the last time with respect to a normal on a hit point of the central principal ray on the first surface. See the first optical system (10 and 20) and exit pupil (1) in Fig. 3, and the scanning device (26, 30), scattering surface (6) and light source (29) in Fig. 9.

In regard to claims 4 and 12, surface (13 in Fig. 3) has been taken as a third surface.

In regard to claims 5 and 13, see intermediate image at curved plane (4 in Fig. 3) and the scanning device including scanning mirror (galvanomirror 30 in Fig. 9) which is disposed at a position conjugated with the exit pupil (1). In addition, see intermediate image at surface (21 in Fig. 7) and the scanning device including scanning mirror (galvanomirror 30 in Fig. 9) which is disposed at a position conjugated with the exit pupil for claim 13.

In regard to claims 7 and 15, a drive circuit which drives the scanning device is inherently disclosed because it is necessary for driving the scanning device so as to scan the light beam to the first optical system.

In regard to claim 9, the optical/light path structure shown each of Figs. 3 and 7 meets "the first optical system has a case where an inner product between outer products each formed by vectors of incident light and reflected light in the respective reflections performed the plurality of times is negative" recited in the last paragraph of the claim.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Togino et al in view of Japan document 2001-281583 to Keiichi.

Togino et al discloses a scanning optical system having all claimed features discussed above. The difference between the claimed invention and the applied prior art is the two-dimensional scanning reflector recited in each of claims 6 and 14. However, the use of a single reflector for two-dimensional scanning device is well known in the art. Keiichi discloses a scanning optical system (Fig. 1) having a scanning device



formed of a reflective member (Fig. 3) scannable in a two-dimensional direction for two dimensionally scanning an incident light beam. Thus, it would have been obvious to one skilled in the art to apply the teaching of Keiichi in Togino et al by replacing two scanning mirrors 30 and 26 disclosed in Togino et al with the scanning device disclosed in Fig. 3 of Keiichi for two dimensionally scanning an incident light beam so as to make the scanning system more compact and less electrical power consumption.

Claims 8 and 16 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Togino et al.

Togino et al discloses a scan type image display apparatus having all claimed features discussed above; Togino et al does not explicitly disclose an image-information supply apparatus which supplies information to the image display apparatus. However, an image-information supply apparatus such as computer device, video device or other digital or analog image data source must be inherently disclosed for supplying image information to the image display apparatus because it is necessary for providing various image information at the exit pupil. Alternatively, it would have been obvious to one skilled in the art to provide the image display apparatus disclosed in Togino et al with an image-information supply apparatus such as computer device, video device or other digital or analog image data source for supplying image information to the image display apparatus for providing various image information at the exit pupil for a viewer.

***Allowable Subject Matter***

Claims 10-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 2-3 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

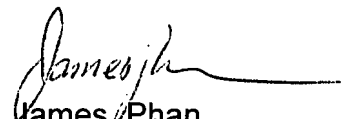
The following is a statement of reasons for the indication of allowable subject matter: none of the cited references teaches or fairly suggests the claimed combination defined in each of claims 2-3 and 10-11.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Phan whose telephone number is (571) 272-2317. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Allen B. Stephone can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
James Phan  
Primary Examiner  
Art Unit 2872

JP  
June 22, 2007